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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/675,721	01/10/2001	Nicholas F. Borrelli	SP00-080	3514

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CORNING INCORPORATED  
SP-TI-3-1  
CORNING, NY 14831

EXAMINER
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HOFFMANN, JOHN M

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 08/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/675,721

Applicant(s)

BORRELLI ET AL.

Examiner

John Hoffmann

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 16-19, 25-38 and 40-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-19, 25-38 and 40-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) X.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7-28/2003 has been entered.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16-19 and 25-38 and 40-45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

If the language of the claim is such that a person of ordinary skill in the art could not interpret the metes and bounds of the claim so as to understand how to avoid infringement, a rejection of the claim under 35 U.S.C. 112, second paragraph would be appropriate. See *Morton Int'l, Inc. v. Cardinal Chem. Co.*, 5 F.3d 1464, 1470, 28 USPQ2d 1190, 1195 (Fed. Cir.1993).

The term "H<sub>2</sub> - loaded" is indefinite to its meaning. First it is noted that there is no definition indicated in the specification. Second, Examiner did a text search of US

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patents on WEST and could not find any definition. Third, In the arguments filed 5/28/03 Applicant gives a definition for "H<sub>2</sub> - loading"; this different from the term in question. Fourth, in the IDS filed 7/28/03, there is a reference "CA" Svalgaard, "Direct writing of buried single mode Channel waveguides..." which on page 1402, second full paragraph refers to high photosensitivity due to H<sub>2</sub> from the original deposition process. It seems to Examiner that Svalgaard's originally incorporated hydrogen would be indistinguishable from hydrogen which came from "H<sub>2</sub> - loading" (as per applicant's definition which requires diffusion). One of ordinary skill would not know whether originally incorporated (non-diffused) hydrogen would read on the claims. One of ordinary skill could not interpret the metes and bounds of the claims so as to whether one can avoid infringement by incorporating hydrogen by other means.

Fifth, (and most importantly) the top of page 3 of the specification states that it "takes 36 days to load...." Examiner is quite sure that if one was to do the same treatment for only 10 days, that there would be diffusion of some hydrogen into the piece of glass. (Although to a lesser degree.) This would meet Applicant's definition for "H<sub>2</sub> - loading" - but it contradicts the statement that it takes 36 days. One of ordinary skill would not know whether a 10 day treatment would or would not read on the claim language. It is clear that the metes and bounds of the claim are too vague.

Claim 25: It is unclear what is meant by the newly added language of the "core being clad in all directions perpendicular to the axis of the waveguide core." Applicant argues that Cocito does not meet this limitation (using the interpretation of Final Rejection). Examiner disagrees because in all directions one can find locations where

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cladding of 13 lies beyond the core/struts. Thus it is deemed that such language is indefinite.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 40-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. There is no support for limitations of claims 40-41. Examiner could not find explicit support for this broad language. At most there is support for a 1 cm limitation from "the" glass surface or from "the exterior surfaces".

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application

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by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 25, 34, 37-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Cocito 6209356.

The figures of Cocito clearly show the invention. The entire fiber interior is the interior. The fiber comprises two different homogeneous compositions: 12 and 13. 12 is the homogenous composition which reads on the claimed composition. 9 is the laser beam. 11 is the lens. The relative motion, is the motion of the fiber. There is a focus inside the body - it is deemed that since the light is of an intensity which can cause a index change within material 13, it is "sufficient to increase the refractive index of the composition" (12) because they are both silica glasses. It is noted that the claim does not require that the "composition" actually have a change in refractive index, and thus it would be improper for the Office to read such a limitation into the claims. Composition 12 clads the core which is within the interior of the glass body.

Claims 34 and 37: see col. 2, line 49.

Claim 38 is met in at least two different ways. First, from figure 3, there is shown two cores that are perpendicular to each other. It is clear that any light is coupled

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between both of them. The second way: One can arbitrarily divide the fiber into two lengths - the first length is the first guide, the second length is the second guide.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 26, 29-33, 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cocito.

Claim 26: The claim does not state when the two planes must not be parallel. It would have been obvious to one of ordinary skill, that the two ends of the fiber would not parallel as one connects the fiber to whatever device it is to be used in. It would have been obvious to wind the Cocito fiber onto a spool; as the spool rotates, the first end of the spool would rapidly change its orientation - and for some period of time, the ends would not be parallel.

Claim 31: since Applicant has the same wavelength and the same sort of glass that Cocito has, it is deemed that they would have the same internal transmission.

Claims 29-30 it would have been obvious to have the composition/index homogeneous, otherwise it would not be able to maintain the light in the waveguide. It would have been obvious to have each glass of the Cocito substrate to be as homogenous as possible - with no new or unexpected results. It is clear that the

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refractive index of the Cocito invention is an important parameter. One would know that if the index is something other than what it is suppose to be, that the device would not effect the optical signal in the manner in which it is intended.

Claims 32-33: See Cocito at col. 2, lines 64-66. However, it does not indicate what wavelength the change in index is. The Office does not have the facilities to test such. It would have been obvious to expect that the change in index at 633 nm meets the values claimed - because Cocito disclose a value three times that of the minimum claimed, and because Cocito does what Applicant does. Alternatively, it would have been obvious to one practicing the Cocito method, to treat the glass so the index change is as disclosed - for all wavelengths - because Cocito discloses that such a change is possible - and be cause the more of a change, the better the waveguide can focus.

Claims 35-36 it would have been obvious to perform routine experimentation to determine what type of laser works best - with no new or unexpected results. Alternatively, the various known lasers are equivalents.

Claim 16-19, 40-45, 25,27-31, 35-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atkins 5287427.

Claim 16: The invention is disclosed in the paragraph spanning cols. 5-6 and figure 3. There is no indication as to whether the glass is "H<sub>2</sub> - loaded". It would have been obvious to not load the glass because such will simply take extra time, money and effort - there already being sufficient H<sub>2</sub> or D<sub>2</sub> in the glass.



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It is noted that Page 7, lines 7-9 of the response filed 5-28-03 states that "H<sub>2</sub> - loading" is a process at high temperatures and/or pressures. Atkins discloses that the gas species are introduced at "quite low" temperatures and "moderate" pressures. This means neither the temperature nor the pressure is "high" - therefore the Atkins does not have "H<sub>2</sub> - loading". This means that the glass is not "H<sub>2</sub> - loaded".

Alternatively, if Atkins process does constitute "loaded" glass: glass which is D<sub>2</sub> - loaded does not read on the claim. "D<sub>2</sub>" is different from "H<sub>2</sub>".

The Atkins cladding comprises "the silica based material". It is noted that the claim does not preclude some portions of the cladding to be made from other compositions.

Claims 17-18: layer 32 has a substantially homogenous composition/index. Alternatively, it would have been obvious to have the composition/index homogeneous, otherwise it would not be able to maintain the light in the waveguide.

Claim 19: It would have been obvious to have each glass of the Atkins substrate to be as homogenous as possible - with no new or unexpected results. It is clear that the refractive index of the Atkins invention is an important parameter. One would know that if the index is something other than what it is suppose to be, that the device would not effect the optical signal in the manner in which it is intended.

Claim 42, there is not indication of the size of the waveguide or the substrate. However, it would have been obvious to make the waveguide as small as possible, so that one can make as many waveguides on the substrate as possible. Also, because

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the thinner the waveguide, the thinner the layer 32 has to be, and the less, material has to be created - which results in reduced time and material costs.

Claim 44: see col. 4, line 16 which teaches to use another dopant besides germania.

Claim 25: In addition to how Atkins is applied to claim 16: Atkins doesn't disclosed how the focused light is focused. It would have been obvious to use a lense to focus the light, because by definition, anything which causes light to be focused is a lense.

Claim 27: The end faces shown in 3 are planes that are not parallel to the tunnel

Claim 28: Figure 3 shows only one waveguide. It would have been obvious to write multiple waveguides in the device, so as to be able to carry three times as many signals - with no new or unexpected results. Any straight waveguide could be considered to be in a vertical plane - this plane would be separate from the other waveguides in layer 32 of Atkins' figure 3. Alternatively see figure 6: Any one waveguide 62 is in a vertical plane. The plane is separate from the other cores. The waveguides are cladded partially by the composition and partially by air. They are within the interior.

Claim 31: since Applicant has the same wavelength and the same sort of glass that Atkins has, it is deemed that they would have the same internal transmission.

Claims 29-30 : it would have been obvious to have the index/index homogeneous, otherwise it would not be able to maintain the light in the waveguide. It would have been obvious to have each glass of the Atkins substrate to be as

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homogenous as possible - with no new or unexpected results. It is clear that the refractive index of the Atkins invention is an important parameter. One would know that if the index is something other than what it is suppose to be, that the device would not effect the optical signal in the manner in which it is intended.

Claims 35-36 it would have been obvious to perform routine experimentation to determine what type of laser works best - with no new or unexpected results.

Alternatively, the various known lasers are equivalents.

Claim 43: see how claim 42 is addressed.

Claim 45: see how claim 44 is addressed.

As to claims 40-41: it would have been obvious to make the device as large or as small as one desired - and to have the wave guide as deep or as shallow as desired.

### ***Response to Arguments***

It is argued that figures 9A-9E show support for the 1 cm limitation of claims 40-41. First it is noted that figures are not interpreted to be drawn to scale - unless otherwise noted. Second, it appears that cores of 9A are very close to each other. Thus one waveguide is very near the surface of another wave guide. It is not understood how at least figure 9A shows support for claims 40-41.

It is argued that if both the core and cladding of Cocito's fiber are taken together to be the interior, then the body does not have a homogeneous composition. This is not understood by Examiner. The fiber would have at least two homogeneous

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compositions. The claim is open to having additional structure beyond the homogeneous composition.

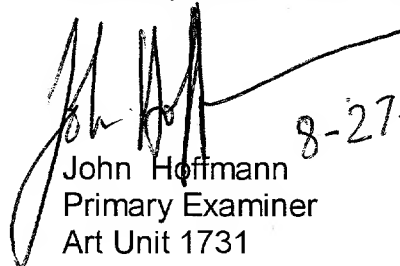
It is still further argued that the Cocito struts are not waveguiding cores. This argument is not persuasive. The claim does not require the affected region to be cores; the claims are open to having the core comprising index-raised portions as well as non-raised portions.

The arguments regarding Atkins were considered and are not persuasive. See the rejection for how Atkins meets the claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is 703-308-0469. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 703-308-1164. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

  
John Hoffmann  
Primary Examiner  
Art Unit 1731  
8-27-03

jmh